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What is Claimed is:

1. Method for determining the storage state of an ammonia-adsorbing SCR catalyst, wherein the change in at least one physical property of the SCR catalyst changes on account of the the NH_3 storing process, said method comprising:

applying a measuring pickup to the SCR catalyst;

sensing a physical property of the SCR catalyst from said measuring pickup; and

determining the storage state on the basis of said physical property.

2. Method according to Claim 1, wherein the sensing of a physical property is carried out at a plurality of points of the SCR catalyst.

3. Method according to Claim 2, wherein the physical property is an electrical property of the SCR catalyst or the SCR catalysts' response to temperature changes.

4. Method according to Claim 3, wherein the electrical impedance of the SCR catalyst is sensed.

5. Method according to Claim 4, wherein the sensing of the impedance takes place at one or more frequencies from the frequency range between 0 Hz and an upper cut-off frequency, at which the wavelength corresponding to the

measuring frequency is significantly less than the dimensions of the measuring arrangement.

6. Method according to Claim 4, wherein the sensing of the electrical impedance ocurs with either two electrodes, a conductor loop, or an inter-digital structure.

7. Method according to Claim 6, wherein one of said plurality of points is near the inlet of the SCR catalyst, and another of said plurality of points is disposed in the rearward quarter of the SCR catalyst.

8. Method according to Claim 1, wherein the thermal electromotive force of the SCR catalyst material is sensed.

9. Method according to Claim 1, wherein the change in mass or volume of the SCR catalyst is sensed.

10. Method for determining the storage state of an ammonia-adsorbing SCR catalyst, said SCR catalyst adapted for use in an exhaust gas stream, said method comprising:

placing a material identical or similar to the SCR catalyst material with regard to its physical properties, said material being arranged in the exhaust-gas stream in addition to the SCR catalyst, said material includes at least one physical property that changes with the NH_3 storing process;

applying said material to a measuring pickup;

sensing a physical property of said material from said measuring pickup; and

determining the storage state on the basis of said physical property.

11. Method according to Claim 10, wherein the sensing of a physical property is carried out at a plurality of points of the SCR catalyst.

12. Method according to Claim 11, wherein said physical property is an electrical property of the material or said material's response to temperature.

13. Method according to Claim 12, wherein the electrical impedance of the substitute materialis sensed.

14. Method according to Claim 13, wherein the sensing of the impedance takes place at one or more frequencies from the frequency range between 0 Hz, i.e. d.c. voltage, and an upper cut-off frequency, at which the wavelength corresponding to the measuring frequency is significantly less than the dimensions of the measuring arrangement.

15. Apparatus for carrying out the method according to Claim 14, wherein the measuring pickup for sensing the complex electrical impedance includes a substrate having two generally flat sides, on one flat side either a conductor or electrode structure is applied, and on the other flat side an electrical heater is applied, the material being applied on the flat side that is provided with the conductor or electrode structure.

16. Apparatus according to Claim 15, wherein either the conductor or electrode structure is an inter-digital structure.

17. Apparatus according to Claim 16, wherein the substrate is selected from silicon, quartz or a ceramic, and the electrical heater has 100 nm to 50 μm thick sheets of metal, and the conductor or electrode structure is consructed of metal and has a layer thickness of between 100 nm and 100 μm and the material has a layer thickness of between 100 nm and 1000 μm.

18. Method according to Claim 10, wherein the change in the thermal electromotive force of the substitute material is sensed.

19. Apparatus for carrying out the method according to Claim 18, wherein the measuring pickup for sensing the thermal electromotive force includes a substrate having two generally flat sides, on one flat side an electrical heater is applied on the other flat side the material and at least two pairs of thermocouples are applied.

20. Apparatus according to Claim 19, wherein the substrate consists of silicon, quartz or a ceramic, and the electrical heater has 100 nm to 100 μm thick sheets of metal.

21. Method according to Claim 10, wherein the change in mass or volume is sensed.

22. Apparatus for carrying out the method according to Claim 21, wherein the measuring pickup for sensing the change in mass of the material includes a vibrating quartz crystal on which electrical excitation electrodes are applied on both sides, the material being applied at least on one excitation electrode.

23. Apparatus for carrying out the method according to Claim 21, wherein the measuring pickup for recording the change in mass of the substitute material is constructed as follows: the laminar substitute material forms within a surface wave sensor the propagation path of a surface wave.